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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,066	02/20/2004	John D. LeaSure	30644-xx	6299

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EXAMINER

BERGIN, JAMES S

ART UNIT	PAPER NUMBER
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3641

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/783,066

Applicant(s)

LEASURE, JOHN D.

Examiner

James S. Bergin

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7-10, 17 and 22-26, are rejected under 35 U.S.C. 103(a) as being unpatentable over Elliott (US 6,916,354 B2) in view of applicant's admission in paragraph [00024] of the specification regarding the commercial availability of PEBAX binder prior to the applicant's invention or in view of *In re Leshin*, 125 USPQ 416.

Regarding claims 1, 7, 8 and 10, Elliott discloses a composite bullet comprising a tungsten ballast (col. 3, lines 50-57) encased in an organic binder, the binder comprising a thermoplastic binder such as Pebax, a polyether block amide (tables 2, 4 & 5.; col. 4, line 55 – col. 5, lines 1-31), the bullet having a specific gravity in the range of 10.5g/cc to 12.0 g/cc.

The applicant argues on page 8 of the response filed 4/7/2006, "*that the Elliott patent does not represent prior art with regards to the polyether block amide*" because Elliotts' the provisional application, 60/329,307, "*does not describe block amide in a manner sufficient to satisfy 35 USC 112*".

However, the applicant's specification, paragraph [00024], paragraph [00024], admits, "*that PEBA is a regular linear chain of rigid polyamide segments interspaced with flexible poly ether segments*" and that "*PEBA is readily available commercially*

*under the trade name PEBAX*". Further admissions regarding the commercial availability of PEBA/ PEBAX can be found in the paragraph [00025] on page 7 of the specification.

Elliott's provisional application, 60/329,307, discloses that the binder can comprise a single polymeric entity or a blend of different polymers, and further discloses that the binder can comprise thermoplastic resins such as polyamides (page 3, line 31 – page 4, line 11). Elliott's "307 provisional application does not specifically mention PEBAX.

In view of the applicant's admission regarding the commercial availability of the thermoplastic resin binder PEBAX prior to the applicant's invention, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to select PEBAX as the Elliott's organic binder, because to do so would only comprise the selection of an organic binder that was ubiquitously well known and commercially available in the art prior to the applicant's invention. It is noted that the applicant's specification lacks any convincing explanation of the criticality of the binder comprising PEBA or PEBAX or a binder comprising linear chain of rigid polyamide segments interspaced with flexible poly ether segments?

It would have been obvious to one having ordinary skill in the art at the time the invention was made to PEBAX as the Elliott's thermoplastic resin binder, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claim 4, Elliott discloses that the binder can comprise a blend of thermoplastic elastomers, such as polyamide elastomers, polyester elastomers, etc. (col. 4, line 65 – col. 5, line 10).

Regarding Claims 2, 3, 5, 9, 17 and 22-26, Elliott discloses a composite bullet comprising a tungsten ballast (col. 3, lines 50-57) encased in an organic binder, the binder comprising a thermoplastic elastomer such as Pebax, a polyether block amide (tables 2, 4 & 5.; col. 4, line 55 – col. 5, lines 1-31). Elliott discloses in col. 5, lines 20-22, that *“the binder, including other processing aids, is preferably present in the composite in an amount of about 1-10%, or about 2-6%, by weight of the composite”*. In tables 2, 4 and 5 the fractional weights of examples of Elliott's binder are shown and it appears that Pebax 7233 comprises about 0.88. Elliott further discloses that the binder can comprise a blend of thermoplastic elastomers, such as polyamide elastomers, polyester elastomers, etc. (col. 4, line 65 – col. 5, line 10).

Regarding claims 9 and 25, Elliott discloses in tables 2-6 that the fractional weight of tungsten in the ballast portion of the composition is 0.975, which one might interpret as consisting essentially of tungsten. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to comprise the ballast portion of Elliott's composition as consisting essentially of tungsten, to alter the specific gravity of the bullet in a desired way and/or since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

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Regarding claim 17, Elliott does not specifically disclose that the binder comprises about 10-30% polyether block amide (Pebax) by weight. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the composition of the binder such that it comprised 10-30% polyether block amide (Pebax) by weight, so as to alter the specific gravity of the bullet in a desired manner and/or since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claims 2, 22, Elliott's composite bullet has a specific gravity in the range of 10.5g/cc to 12.0 g/cc (col. 5, lines 25-29). Elliott discloses that the tungsten ballast used in the composite is preferably in an amount of about 80%-99% by weight of the composite (col. 3, lines 50-53).

However, Elliott does not disclose that the projectile comprises 6-66% by weight the tungsten ballast. Nor does Elliott disclose that the projectile comprises 34-94% by weight the polyether block amide (Pebax) binder.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the composition of the binder such that it comprised 34-94% by weight the polyether block amide (Pebax) binder and 6-66% by weight the tungsten ballast, so as to alter the specific gravity of the bullet in a desired manner and/or since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 3, Elliott does not disclose that the projectile comprises 45-49% by weight the tungsten ballast. Nor does Elliott disclose that the projectile comprises 51-55% by weight the polyether block amide (Pebax) binder.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the composition of the binder such that it comprised 51-55% by weight the polyether block amide (Pebax) binder and 45-49% by weight the tungsten ballast, so as to alter the specific gravity of the bullet in a desired manner and/or since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 5, Elliott discloses that the binder can comprise a blend of thermoplastic elastomers, such as polyamide elastomers, polyester elastomers, etc. (col. 4, line 65 – col. 5, line 10). However, Elliott does not disclose that the binder comprises about 10% to about 30% polyether block amide (Pebax) by weight and about 70 to about 90% by weight the second resin/ elastomer. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the composition of the binder such that it comprised 10-30% polyether block amide (Pebax) by weight, and 70 to about 90% by weight the second resin/ elastomer so as to alter the specific gravity of the bullet in a desired manner and/or since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claims 23 and 24, Elliott's composite bullet has a specific gravity in the range of 10.5g/cc to 12.0 g/cc (col. 5, lines 25-29).

Regarding claim 26, Elliott discloses that the binder can comprise a blend of thermoplastic elastomers, such as polyamide elastomers, polyester elastomers, etc. (col. 4, line 65 – col. 5, line 10).

3. Claims 13-16 and 18-21, are rejected under 35 U.S.C. 103(a) as being unpatentable over Elliott (US 6,916,354 B2) in view of Ikawa et al. (US 6,617,383 B2).

Elliott does not specifically disclose that the projectile comprises a plasticizer such as n-butylbenzene sulfonamide. However, Ikawa et al. disclose a thermoplastic elastomer composition comprising the plasticizer, n-butylbenzene sulfonamide, which addition confers improved processability to the elastomer composition (col. 1, lines 59 – col. 2, line 5; col. 4, lines 12-20). In view of Ikawa et al., it would have been obvious to one of ordinary skill in the art at the time that the invention was made to include the plasticizer, n-butylbenzene sulfonamide, in the composition of Elliott's composite projectile, so as to confer improved processability thereto.

4. Claims 6, 11, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elliott (US 6,916,354 B2) in view of Bray et al. (6,048,379).

Regarding claims 6, 27 and 28, Elliott discloses that the binder can comprise a blend of thermoplastic elastomers, such as polyamide elastomers, polyester elastomers, etc. (col. 4, line 65 – col. 5, line 10). However, Elliott does not specifically disclose that the polymeric binder Nylon can be added as a component of the binder blend.



Bray et al. disclose the use of Nylon 12 as a binder in a projectile composite, the composite including tungsten, the Nylon 12/ tungsten composite having equal or superior impact strength when compared to a lead projectile (col. 19, lines 19-25). In view of Bray et al., it would have been obvious to one of ordinary skill in the art at the time that the invention was made to add Nylon 12 to Elliott's blend of binders, to positively influence the impact strength of the composite projectile.

Regarding claim 11, 29 and 30, Elliott discloses the addition of strength enhancing agents to the binder (col. 5, lines 10-14) but does not specifically disclose that the binder further comprises a fiber. However, Bray et al. discloses the use of Kevlar fibers in a tungsten/ polymeric binder composite in projectile applications so as to increase the tensile strength to the composite projectile, (col. 6, lines 25-38). In view of Bray et al., it would have been obvious to one of ordinary skill in the art at the time that the invention was made to add Kevlar fibers to the Elliott's binder blend, so as to increase the tensile strength of the composite projectile.

5. Claims 12, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elliott (US 6,916,354 B2) in view of Belanger et al. (US 5,237,930).

Elliott discloses the addition of a surfactant such as a wax and a fluoropolymer to the binder (col. 5, lines 14-28). However, Elliott does not specifically state that these substances possess lubricating properties, although it could be convincingly argued that they do. In any event, Belanger discloses the addition of molybdenum disulfide to the binder to act as a lubricant (col. 5, lines 18-25; col. 6, lines 67-68). In view of Belanger et al., it would have been obvious to one of ordinary skill in the art at the time

that the invention was made to add molybdenum disulfide to Elliott's binder to act as a lubricant.

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection.

7. It is noted that the applicant's specification lacks any convincing explanation of the criticality of the binder comprising PEBA or PEBAX or a binder comprising linear chain of rigid polyamide segments interspaced with flexible poly ether segments?

The applicant argues on page 8 of the response filed 4/7/2006, *"that the Elliott patent does not represent prior art with regards to the polyether block amide"* because Elliotts' the provisional application, 60/329,307, *"does not describe block amide in a manner sufficient to satisfy 35 USC 112"*.

However, the applicant's specification, paragraph [00024], paragraph [00024], admits, *"that PEBA is a regular linear chain of rigid polyamide segments interspaced with flexible poly ether segments"* and that *"PEBA is readily available commercially under the trade name PEBAX"*. Further admissions regarding the commercial availability of PEBA/ PEBAX can be found in the paragraph [00025] on page 7 of the specification.

Elliott's provisional application, 60/329,307, discloses that the binder can comprise a single polymeric entity or a blend of different polymers, and further discloses that the binder can comprise thermoplastic resins such as polyamides (page 3, line 31 –

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page 4, line 11). Elliott's "307 provisional application does not specifically mention PEBAX.

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Bergin whose telephone number is 571-272-6872. The examiner can normally be reached on Monday - Wednesday and Friday, 8.30 - 5.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



James S. Bergin